LISTING OF THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (Original)

A substrate processing apparatus that removes an unwanted material on a surface of a peripheral portion of a substrate through etching by supplying etching liquid to the face of the peripheral portion, the apparatus comprising:

an etching liquid supplying mechanism that supplies the etching liquid to the peripheral portion of the substrate; and

an annular member that has an inner periphery on or inside an outer periphery of the substrate and thereby defines a processing width to be processed by the etching liquid on the surface of the peripheral portion of the substrate.

Claim 2 (Original)

The substrate processing apparatus according to Claim 1, wherein:

the annular member is placed in close proximity to the surface of the peripheral portion of the substrate while securing a certain gap such that allows the annular member to come in contact with a liquid film of the etching liquid formed on the surface of the peripheral portion.

Claim 3 (Original)

The substrate processing apparatus according to Claim 1, further comprising:

a substrate holding mechanism that holds the substrate from one surface side thereof, wherein the annular member is placed on the other surface side of the substrate.

Claim 4 (Original)

The substrate processing apparatus according to Claim1, wherein:

the etching liquid is supplied to the peripheral portion of the substrate from the etching liquid supplying mechanism while the substrate is held at rest.

Claim 5 (Original)

The substrate processing apparatus according to Claim 1, wherein:

the substrate is a substrate of a nearly circular shape;

the apparatus further comprises a substrate rotating mechanism that rotates the substrate; and

the inner periphery of the annular member is of a circular shape having an inside diameter equal to or smaller than a diameter of the substrate.

Claim 6 (Original)

The substrate processing apparatus according to Claim 5, wherein:

the etching liquid is supplied to the peripheral portion of the substrate from the etching liquid supplying mechanism wile the substrate is rotated by the substrate rotating mechanism.

Claim 7 (Previously Presented)

The substrate processing apparatus according to claim 1, wherein:

the annular member includes a substrate-opposing surface that faces toward the substrate from the annular member and opposes the surface of the peripheral portion of the substrate.

Claim 8 (Original)

The substrate processing apparatus according to Claim 7, wherein:

the substrate-opposing surface is a plane nearly parallel to the surface of the peripheral portion of the substrate.

Claim 9 (Withdrawn)

The substrate processing apparatus according to Claim 7, wherein:

the substrate-opposing surface is an inclined plane inclined to reduce an interval between the substrate-opposing surface and the substrate as heading toward the inner periphery.

Claim 10 (Withdrawn)

The substrate processing apparatus according to Claim 7, wherein:

an outer periphery of the substrate-opposing surface is located outside the outer periphery of the substrate.

Claim 11 (Original)

The substrate processing apparatus according to Claim 7, wherein:

the annular member includes a projection that protrudes from the substrate-opposing surface toward the substrate and thereby limits the etching liquid heading toward an inside of the substrate.

Claim 12 (Withdrawn)

The substrate processing apparatus according to Claim 11, wherein:

the projection includes, on an outer side of the annular member, an etching liquid limiting surface having an inclined plane that heads toward an outside of the substrate as going away from a surface of the substrate.

Claim 13 (Withdrawn)

The substrate processing apparatus according to Claim 7, wherein:

the annular member includes a liquid discharge path that opens in the substrate-opposing surface and communicates with an external space of the annular member.

Claim 14 (Withdrawn)

The substrate processing apparatus according to Claim 7, wherein:

the etching liquid supplying mechanism includes a liquid dispense path made in the annular member and including a dispense port that opens in the substrate-opposing surface.

Claim 15 (Withdrawn)

The substrate processing apparatus according to Claim 7, wherein:

the etching liquid supplying mechanism includes a dispense port that opens in the substrate-opposing surface, a liquid-receiving portion that communicates with the dispense port, and a nozzle that supplies the liquid-receiving portion with the etching liquid.

Claim 16 (Withdrawn)

The substrate processing apparatus according to Claim 15, wherein:

the annular member is placed so that the substrate-opposing surface opposes the substrate from above; and

the liquid-receiving portion is formed in an upper surface of the annular member.

Claim 17 (Original)

The substrate processing apparatus according to Claim 1, wherein:

the etching liquid supplying mechanism includes a nozzle that supplies the etching liquid toward a surface of the substrate on an opposite side to a surface containing the surface of the peripheral portion.

Claim 18 (Original)

The substrate processing apparatus according to Claim 17, wherein:

the nozzle supplies the etching liquid toward a central portion of the surface on the opposite side.

Claim 19 (Original)

The substrate processing apparatus according to Claim 17, wherein;

the annular member has an outer wall surface positioned inside the outer periphery of the substrate.

Claim 20 (Withdrawn)

The substrate processing apparatus according to Claim 19, wherein;

the etching liquid supply mechanism includes a nozzle provided outside the annular member.

Claim 21 (Withdrawn)

The substrate processing apparatus according to Claim 1, wherein:

the etching liquid supplying mechanism includes a nozzle that supplies the etching liquid toward an outer wall surface of the annular member.

Claim 22 (Original)

The substrate processing apparatus according to Claim 1, wherein:

the etching liquid supplying mechanism includes a dispense port through which the etching liquid is dispensed in a direction perpendicular to a surface of the substrate or a direction inclined toward an outside of the substrate.

Claim 23 (Original)

The substrate processing apparatus according to Claim 1, wherein:

the annular member includes an inner wall surface that rises from the inner periphery in a direction to go away from a surface of the substrate.

Claim 24 (Withdrawn)

The substrate processing apparatus according to Claim 23, wherein:

the inner wall surface is an inclined plane that heads toward a center of the substrate as going away from the surface of the substrate.

Claim 25 (Original)

The substrate processing apparatus according to Claim 1, further comprising:

a lid member that substantially clogs an internal space of the annular member.

Claim 26 (Original)

The substrate processing apparatus according to Claim 25, wherein:

the annular member includes an annular groove formed adjacently inside the inner periphery.

Claim 27 (Original)

The substrate processing apparatus according to Claim 1, further comprising:

a gas supplying mechanism that supplies an internal space of the annular member with a gas.

Claim 28 (Original)

The substrate processing apparatus according to Claim 27, wherein:

the annular member includes an inner wall surface that rises from the inner periphery in a direction to go away from a surface of the substrate, and the gas supplied from the gas supplying mechanism is supplied toward the inner wall surface.

Claim 29 (Original)

The substrate processing apparatus according to Claim 23, wherein:

the annular member includes a gas flowing path that allows a communication between an internal space and an external space of the annular member.

Claim 30 (Original)

The substrate processing apparatus according to Claim 1, further comprising:

a protection liquid supplying mechanism that supplies etching protection liquid toward a center of the substrate at an inner side of the annular member.

Claims 31-39 (Canceled)

Claim 40 (Withdrawn)

A substrate processing apparatus that applies processing to a peripheral portion of a substrate with the use of processing liquid, the apparatus comprising:

a substrate holding mechanism that holds the substrate almost horizontally and rotates the substrate about a nearly vertical rotational axis line;

an opposing member that includes a substrate-opposing surface opposing an upper surface of the substrate held by the substrate holding mechanism and having a hydrophobic property at least

in a peripheral portion region, and a hydrophilic upper surface inclined to near an end edge of the substrate-opposing surface as heading downward, the opposing member protecting a central portion of the upper surface of the substrate by bringing the substrate-opposing surface in close proximity to the upper surface of the substrate; and

a processing liquid supplying mechanism that supplies the processing liquid to the upper surface of the opposing member.

Claim 41 (Withdrawn)

The substrate processing apparatus according to Claim 40, wherein:

the opposing member is formed in a shape of a rotational body having an axis line nearly along the rotational axis line as a central axis line.

Claim 42 (Withdrawn)

The substrate processing apparatus according to Claim 40, wherein:

the opposing member further includes a hydrophilic side surface that connects the end edge of the substrate-opposing surface and an end edge of the upper surface of the opposing member.

Claim 43 (Withdrawn)

The substrate processing apparatus according to Claim 40, further comprising:

an inert gas supplying mechanism that supplies an inert gas to a space between the upper surface of the substrate held by the substrate holding mechanism and the substrate-opposing surface.

Claim 44 (Withdrawn)

A substrate processing apparatus that applies processing, with the use of processing liquid, to a region to be processed including at least part of a peripheral portion of a substrate, the apparatus comprising:

a substrate holding mechanism that holds the substrate;

an opposing member that includes a substrate-opposing surface opposing an upper surface of the substrate held by the substrate holding mechanism and having an end edge corresponding to a boundary set on the upper surface of the substrate to divide the region to be processed and a region not to be processed as well as having a hydrophobic property at least in a peripheral portion region, and an hydrophilic upper surface inclined to near the end edge of the substrate-opposing surface as heading downward, the opposing member protecting the region not to be processed on the upper surface of the substrate by brining the substrate-opposing surface in close proximity to the upper surface of the substrate; and

a processing liquid supplying mechanism that supplies the processing liquid to the upper surface of the opposing member.

Claim 45 (Withdrawn)

The substrate processing apparatus according to Claim 44, wherein:

the opposing member further includes a hydrophilic side surface that connects the end edge of the substrate-opposing surface and an end edge of the upper surface of the opposing member.

Claim 46 (Withdrawn)

The substrate processing apparatus according to Claim 44, further comprising:

an inert gas supplying mechanism that supplies an inert gas to a space between the upper surface of the substrate held by the substrate holding mechanism and the substrate-opposing surface.

Claims 47-48 (Canceled)

Claim 49 (Withdrawn)

A substrate processing apparatus that applies processing to a peripheral portion of a substrate with the use of processing liquid, the apparatus comprising:

a substrate holding mechanism that holds the substrate almost horizontally and rotates the substrate about a nearly vertical rotational axis line;

an opposing member placed oppositely to an upper surface of the substrate held by the

substrate holding mechanism and including a projection strip protruding toward the substrate at an edge portion; and

a processing liquid supplying mechanism that supplies the opposing member with the processing liquid.

Claim 50 (Withdrawn)

The substrate processing apparatus according to Claim 49, wherein:

the opposing member includes a substrate-opposing surface having the projection strip protruding toward the substrate at an edge portion, and an upper surface connected to the projection strip; and

the processing liquid supplying mechanism supplies the processing liquid to the upper surface of the opposing member.

Claim 51 (Withdrawn)

The substrate processing apparatus according to Claim 50, wherein:

the upper surface of the opposing member is inclined to near a periphery of the substrate held by the substrate holding mechanism as heading downward.

Claim 52 (Withdrawn)

The substrate processing apparatus according to Claim 50, wherein:

the upper surface of the opposing member has a hydrophilic property.

Claim 53 (Withdrawn)

The substrate processing apparatus according to Claim 49, wherein:

the projection strip of the opposing member has a lower end edge located above the peripheral portion of the substrate held by the substrate holding mechanism.

Claim 54 (Withdrawn)

The substrate processing apparatus according to Claim 49, wherein:

the projection strip of the opposing member includes, in a lower surface, a plane nearly parallel to the upper surface of the substrate held by the substrate holding mechanism.

Claim 55 (Withdrawn)

The substrate processing apparatus according to Claim 49, wherein:

the projection strip of the opposing member includes, in a lower surface, an inclined plane that nears the upper surface of the substrate held by the substrate holding mechanism as approaching the rotational axis line.

Claim 56 (Withdrawn)

The substrate processing apparatus according to Claim 49, wherein:

the projection strip of the opposing member includes, in a lower surface, a hydrophilic surface opposing the upper surface of the substrate held by the substrate holding mechanism.

Claim 57 (Withdrawn)

The substrate processing apparatus according to Claim 49, further comprising:

an opposing member rotating mechanism that rotates the opposing member about the rotational axis line.

Claim 58 (Withdrawn)

The substrate processing apparatus according to Claim 57, wherein:

the opposing member rotating mechanism rotates the opposing member at a rotational speed lower than a rotational speed at which the substrate is rotated by the substrate holding mechanism.

Claims 59-60 (Canceled)

Claim 61 (Previously Presented)

The substrate processing apparatus according to claim 1, wherein the annular member is continuous.

Claim 62 (Previously Presented)

The substrate processing apparatus according to claim 1, wherein the peripheral portion is selectively etched by the etching liquid at an area defined by the annular member.

Claim 63 (Previously Presented)

The substrate processing apparatus according to claim 1, wherein said inner periphery is disposed inside said outer periphery of the substrate.

Claim 64 (Previously Presented)

A substrate processing apparatus that removes an unwanted material on a surface of peripheral portion of a substrate through etching by supplying etching liquid to the surface of the peripheral portion, the apparatus comprising:

an etching liquid supplying mechanism that supplies the etching liquid to the peripheral portion of the substrate; and

an annular member that has an inner periphery associated with an outer periphery of the substrate so as to define a processing width to be processed by the etching liquid on the surface of the peripheral portion of the substrate.